INSTRUCT-O-GRAM

THE HANDS-ON TRAINING GUIDE FOR THE FIRE INSTRUCTOR

lockout / Tagout Policy

TASK

To present various procedures, operations, firefighter safety considerations, and occupancy safety considerations in order to properly prepare for effective response to Hazardous Energy Situations.

OBJECTIVES

1. The firefighter shall have an understanding of the OSHA 29 CFR 1910.147 hazardous energy policy.
2. The firefighter shall be able to identify the situations that require the use of the hazardous energy policy.
3. The firefighter shall be able to utilize proper procedures in executing lock out / tag out procedures.
4. The firefighter shall demonstrate the knowledge of when the hazardous energy policy should be utilized.
5. The firefighter shall understand the required training for the hazardous energy rule.

INSTRUCTIONAL AIDS

1. Hazardous Energy OSHA Standard 29 CFR 1910.147
2. Various electrical switches that may require lockout and tag out procedure to be performed on in your jurisdiction.

ESTIMATED TEACHING TIME

This program should have approximately 2 hours allowed for delivery. However, it is encouraged to spend as much time as necessary to ensure proper education of the hazards associated with hazardous energy in your jurisdiction.

MOTIVATING THE STUDENT

Electricity, a common house hold item, used constantly in our society. So what is so important about this topic. Simply this…Electricity could mean DEATH! It is a known fact that house hold current, 110 volt, can cause an adult to have lethal heart arrhythmias that could result in cardiac arrest…DEATH! When we respond to routine and working incidents we must look at this concept in a new light. Energy that is properly managed is a tool, improperly controlled is an enemy. The amount of energy located on residential services is much different than industrial one. The prevention of electrical shock is important to safe and efficient operations.

PRESENTATION

Scope

This IOG covers the servicing and maintenance of machines and equipment in which the unexpected energization or start up of the machines or equipment, or release of stored energy could cause injuries to

employees. This policy establishes minimum performance requirements for the control of such hazardous energy. This also includes emergency response procedures under servicing and maintenance.

The control of hazardous energy, commonly known as lockout / tagout, is intended to prevent injuries during machine or equipment maintenance or servicing operations. Lockout / Tagout operations prevents injuries from unexpected energization, start-up or stored energy during these maintenance operations.

Application

This policy applies to the control of energy during servicing and/or maintenance of machines and equipment.

Normal production operations are not covered by this policy. This policy will cover servicing or maintenance which takes place during normal production operations if an employee is required to remove or bypass a guard or other safety device. It will also cover any employee who is required to place any part of his or her body into an area on a machine or piece of equipment where work is actually performed upon the material being processed (point of operation) or where an associated danger zone exists during a machine cycle.

Definitions

Affected employee - An employee who operates or uses a machine or equipment on which servicing or maintenance is being performed under lockout / tagout, or who works in an area where lockout / tagout is used.

Authorized employee – A person who locks out or tags out machines or equipment to do servicing or maintenance work on them. An affected employee becomes an authorized employee when his or her duties include performing covered service or maintenance work.

Energized- Connected to an energy source or containing residual or stored energy.

Energy Isolating Device- A mechanical device that physically prevents the transmission or release of energy, including but not limited to the following:

- A manual operated electrical circuit breaker
- A disconnect switch
- A line valve
- A block
- Any similar device used to block or isolate energy

Push buttons, selector switches, and other control circuit type devices are not energy isolating devices.

Energy Source- Any source of electrical, mechanical, hydraulic, pneumatic, chemical, thermal, or other energy.

Lockout- The placement of a lockout device on an energy source isolating device, in accordance with an established procedure, ensuring that the energy isolating device and the equipment being controlled cannot be operated until the lockout device is removed.

Lockout device- A device (such as a lock, either key or combination type, or blank flanges and bolted slip blinds) to hold an energy isolating device in a safe position and prevent the energizing of a machine or equipment.

Tagout- The placement of a tagout device on an energy isolating device, in accordance with an established procedure, to indicate that the energy isolating device and the equipment being controlled may not be operated until the tagout device is removed.
Tagout device- A prominent warning device, such as a tag and a means of attachment, that can be surely fastened to an energy isolating device.

Servicing and/ or maintenance- Workplace activities such as constructing, installing, setting up, adjusting, inspecting, modifying, and maintaining and/or servicing machines or equipment. These activities include lubrication, cleaning, or unjamming of machines or equipment and making adjustments or tool changes, where the employee may be

exposed to the unexpected energization or startup of the equipment or release of hazardous energy.

Lockout / Tagout Procedures

Follow these six steps, in correct order, to ensure that the lockout / tagout procedure will protect employees.

1. Prepare for shutdown – Before the authorized or affected employee turns off the machine, the authorized employee must know the type and magnitude of the energy and its hazards. And, the authorized employee must know how to control the energy.

Before lockout / tagout devices can be applied, either the employer or the authorized employee must notify the affected employees.

2. Shutdown – The machine or equipment must be turned off following orderly, established procedures. Shutting down the machine must not create any increased hazards from equipment stoppage

3. Isolating equipment- The authorized employee who is performing the servicing or maintenance work to isolate the machine or equipment from its energy sources. The energy isolating devices (disconnect switches, circuit breakers, valves, etc.) must be physically located and operated by the authorized employee.

4. Applying lockout / tagout devices- The authorized employee is to apply lockout / tagout devices to each energy isolating device. Lockout devices must hold the switches, valves, etc. in the safe or off position. If a tagout system is being used, the tags must clearly show that moving the energy-isolating device from the safe or off position is not allowed.

5. Releasing stored energy- Any potentially hazardous stored or residual energy from all sources and components must be released. Relieved, disconnected, or restrained to make sure they are safe. The authorized employee can do this by:
   - Bleeding off pressure
   - Blocking elevated parts in place
   - Drain lines
   - Letting equipment cool
   - Discharging capacitors
   - Other methods specified in the lockout / tagout procedures

6. Verification – The last step is crucial. This step ensures that the lockout / tagout procedure has successfully isolated the machine or equipment from its energy sources (the machine is in a "zero energy state"). To do this, the authorized employee may operate the machine controls to verify that the equipment is isolated. At this point all controls should be in the off positions. The verification process could also include reading pressure or temperature gauges and using test equipment. Now, authorized employees can safely start the repairs or maintenance.

Release from Lockout / Tagout

When repair or maintenance work is completed:

1. Check the machine – Before any lockout / tagout devices are removed, the authorized employee is to replace all machine guards and remove tools and nonessential items from the area. Remove any blocking devices that were inserted, and make sure the machine or equipment is intact and ready to operate.

2. Check for employees – The authorized employee must check the work area to make sure that all employees are in a safe haven away from the equipment before any lockout / tagout devices are removed.

3. Remove lockout / tagout devices – The lockout / tagout devices may only be removed by the authorized employee who applied them. After the lockout / tagout devices have been removed.

4. Resume normal operations – The authorized employee gives permission for the affected employees to resume normal equipment / machine operations.

Use of Tagout Alone

In rare cases, especially with the older machines or equipment, an energy source cannot be locked out. In these situations, a tagout procedure needs to be used. All employees need to be aware of the limitations of tags when a tagout system is used.

- Tags are only warnings. They provide no protection other than warnings. They do not provide the same physical protection as a block.
- Tags must not be by passed or ignored.
- Tags can only be removed by the authorized employee who is responsible for them.
- Tags must be legible.
- Tags must be understandable by all employees in the area. Bi-lingual if needed.
- Tags must hold up under conditions of use.
- Tags may evoke a false sense of security
- Understand why and how lockout/tagout procedures are used.
- Comply with lockout / tagout procedures.

Training Requirements

Training is divided into three areas for lockout / tagout.

1. Authorized employees
2. Affected employees
3. Other employees

Initial Training

Authorized employees-

- Recognize hazardous energy sources.
- Identify the type and magnitude of the energy sources.
- Isolated and control hazardous energy.

Affected Employees-Other employees-

- Know why these procedures are used.
- Understand that they are to never attempt to restart equipment that has been locked or tagged out.

RETRAINING

Authorized and affected employees need refresher training when there is a change in:

- Their job assignments
- Lockout / tagout procedures
- Machines, equipment, or processes that presents a new hazard.

All employees will receive refresher training in lockout / tagout procedures at a minimum of annually. Additional training may be needed if the employer finds that an employee is not following the procedures or does not understand them.

EMERGENCY RESPONSE PERSONNEL

It is often necessary for outside services to be called in for repairs and maintenance work. These outside contractors are also required to follow an energy control program and lockout / tagout procedures. The outside personnel (Emergency Response Personnel) must be informed of lockout / tagout procedures. Emergency Response Personnel must understand and comply with the OSHA procedures. At no time will procedures of Emergency Response Personnel be substandard to OSHA's Standards.

RESOURCES

OSHA 29 CFR 1910.147

ACKNOWLEDGEMENT

Douglas Cline is a 22-year veteran of the Fire Service and a Battalion Chief with the Chapel Hill (NC) Fire Department. He is a North Carolina Level II Fire Instructor, National Fire Academy Instructor for the Office of State Fire Marshal, an EMT-Paramedic instructor/coordinator for the North Carolina Office of Emergency Medical Services, Instructor in the Fire Science Program at Durham Technical Community College, Durham, North Carolina and an Adjunct Instructor at Great Oaks Institute and Technology in the Public Safety Division, Cincinnati, Ohio. Cline is a member of the International Society of Fire Service Instructors where he serves as Eastern Regional Director.